Welcome to the pellet boiler heating

BIOPEL

line

User manual

Thank you for choosing OPOP's Biopel pellet boiler. You have selected the highest quality product of the company known and appreciated throughout the world.

Please read these instructions and always keep them close to the boiler for reference. Observing the requirements and safety information in this manual is important for safety and for appropriate, economical operation of OPOP's Biopel pellet system.

The BIOPEL boilers are boilers for burning wooden pellets with diameter 6-8 mm. It is intended for hot-water heating of family houses and middle and industrial objects.

The boiler design enables to achieve a high efficiency, low emission values and low consumption of fuel. The boiler can be used both in gravity central heating systems and systems with forced circulation.

OPOP

partner for your heating

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1 CHARACTERISTICS OF BOILER TYPES

The BIOPEL boilers are boilers for burning wooden pellets with diameter 6-8 mm . It is intended for hot-water heating of family houses and middle objects.

The boiler design enables to achieve a high efficiency, low emission values and low consumption of fuel. The boiler can be used both in gravity central heating systems and systems with forced circulation.

Main advantages of the BIOPEL boilers:

- Ecology heating - 5. emission class
- Economy heating - efficiency up to 94 %
- Low consumption of electric power
- Possibility to add automatic ash removal and automatic cleaning of the heat exchanger
- Possibility of PC control
- Stainless steel burner
- Easy operation and maintenance
- Length of feeder up to 3 m
- Left or right connection of burner
- Modern design and electronic elements
- Reliable system of automatic ignition
- Possibility of remote control with use of wireless room thermostat
- The boiler is equipped with turbulators to increase the efficiency of the combustion process
- Small size and low weight
- Wide range of tanks including compact tank
- Wide output range - 10 kW, 20 kW, 30 kW a 40 kW

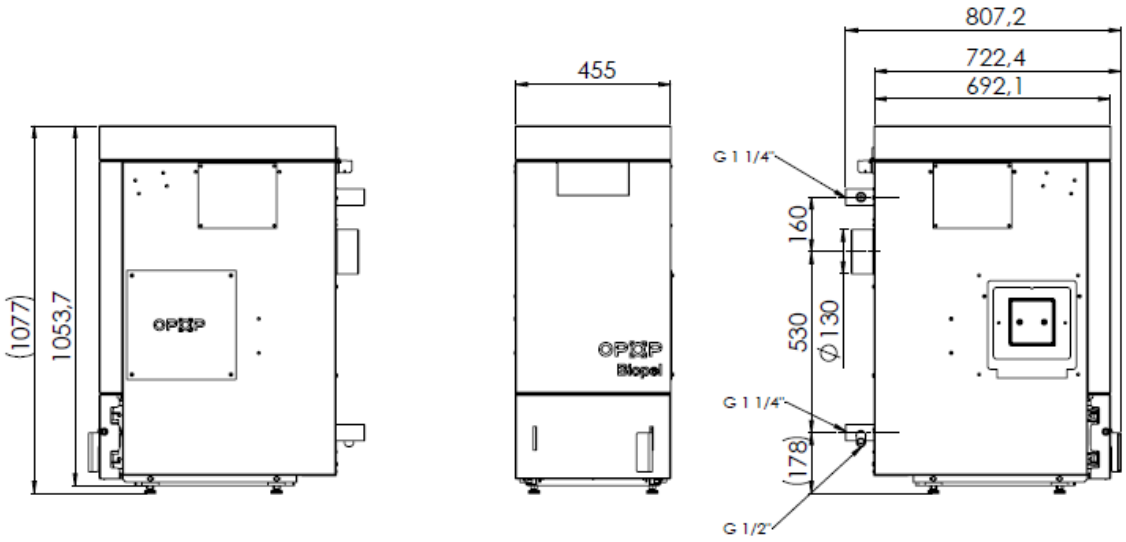
1.1 Technical data – Biopel boiler

You can find basic description of all parts for BIOPEL heating system below. BIOPEl line consists of 3 boiler types, several tank and pelelt auger types.

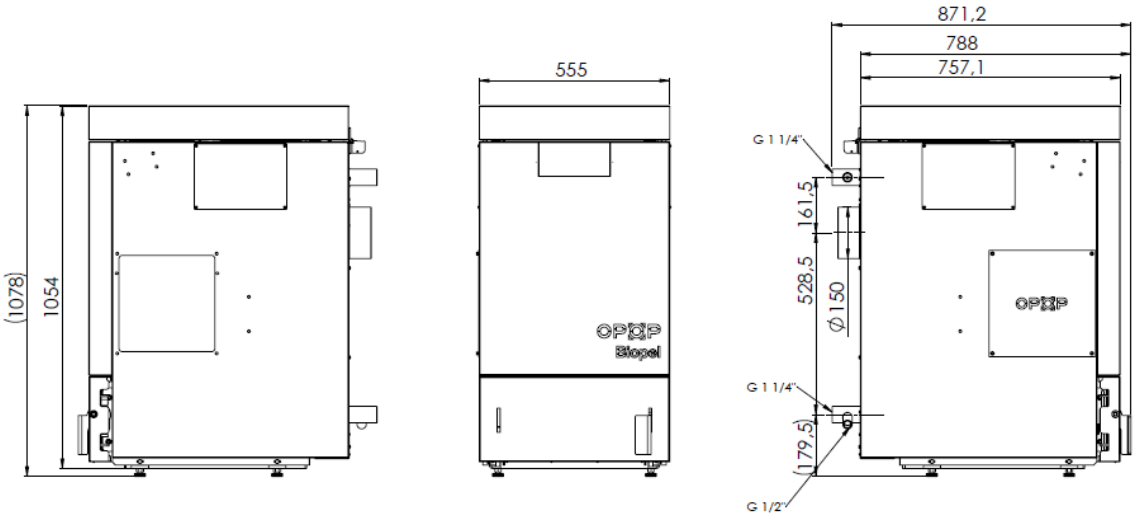
1.1.1 BIOPEL 10 – 40

Technical parameters					
Boiler type		Biopel 10/15	Biopel 20	Biopel 30	Biopel 40
Maximal output	kW	10/15	20	30	40
Minimal output	kW	30% of max power			
Guarantee fuel		Wood pellets 6-8 mm			
Efficiency	%	90-94			
Water volume	l	43	43	59,3	83
Operating chimney draft	Pa	15-20			
Maximum working water pressure	bar	2			
Maximum heating water temperature	°C	85			
Minimal heating water temperature	°C	65			
Dimensions					
A Height	mm	1054	1054	1054	1154
B Width	mm	455	455	555	655
C Depth	mm	692	692	757	856
D Position of smoke flue	mm	708	708	708	808
E Position input water socket	mm	178	178	178	178
F position of output water socket	mm	868	868	868	968
Connecting sockets	DN	G1 1/4"	G1 1/4"	G1 1/4"	G1 1/4"
Flue diameter	mm	130	130	150	150

10 – 15 kW:

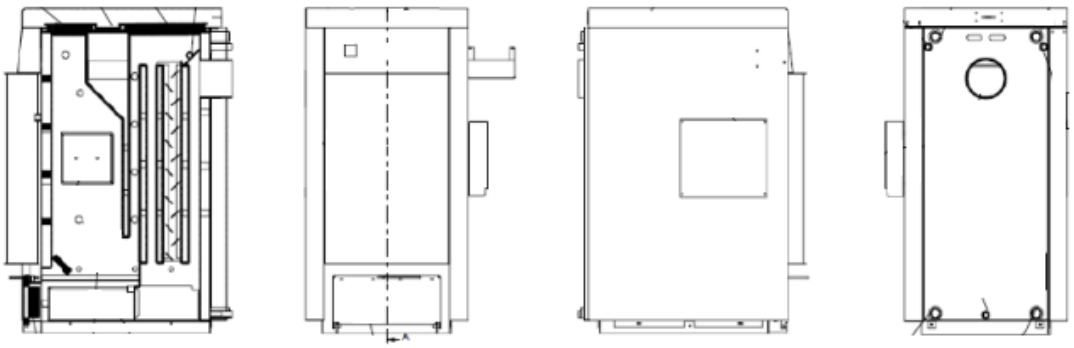


20 – 30 kW:



1.1.2 BIOPEL 60 – 80

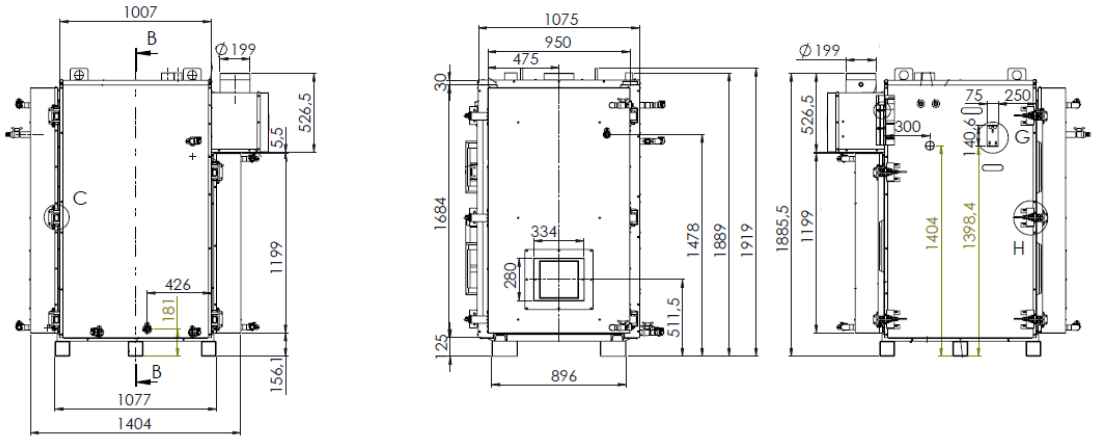
Technical parameters			
Boiler type		Biopel 60	Biopel 80
Maximal output	kW	60	80
Minimal output	kW	30% of max power	
Guarantee fuel		Wood pellets 6-8 mm	
Efficiency	%	93	
Water volume	l	95	130
Operating chimney draft	Pa	15-20	
Maximum working water pressure	bar	2	
Maximum heating water temperature	°C	85	
Minimal heating water temperature	°C	65	
Dimensions			
A Height	mm	1272	1272
B Width	mm	643	743
C Depth	mm	896	997
D Position of smoke flue	mm	998	997,5
E Position input water socket	mm	270	283
F position of output water socket	mm	1121	1154
Connecting sockets	DN	1“	5/4"
Flue diameter	mm	150	180



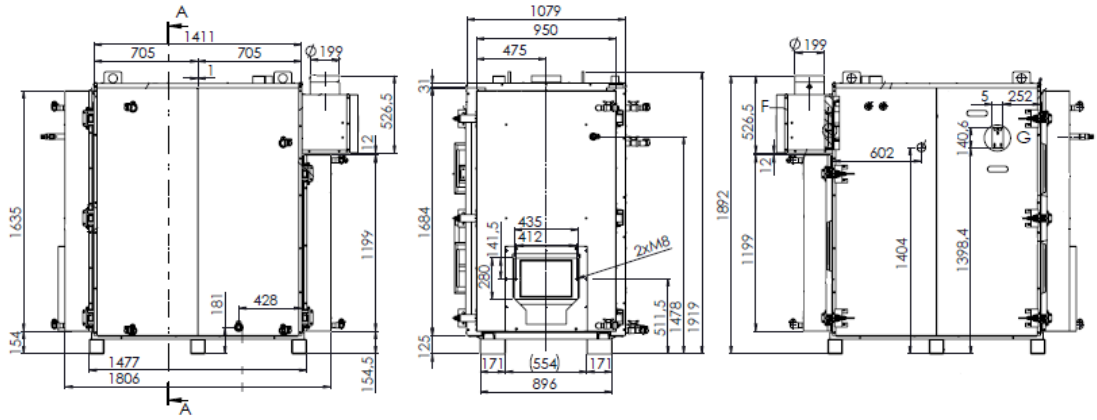
1.1.3 BIOPEL 100 – 200

Technical parameters				
Boiler type		Biopel 100	Biopel 150	Biopel 200
Maximal output	kW	100	150	200
Minimal output	kW	30% of max power		
Guarantee fuel		Wood pellets 6-8 mm		
Efficiency	%	93		
Water volume	l	688	895	1179
Operating chimney draft	Pa	15-20		
Maximum working water pressure	bar	2		
Maximum heating water temperature	°C	85		
Minimal heating water temperature	°C	65		
Dimensions				
A Height	mm	1576	1576	1576
B Width	mm	822	822	822
C Depth	mm	1169	1906	2555
D Position of smoke flue	mm	1199	1199	1199
Connecting sockets	mm	82,5	82,5	82,5
Flue diameter	mm	200	200	200

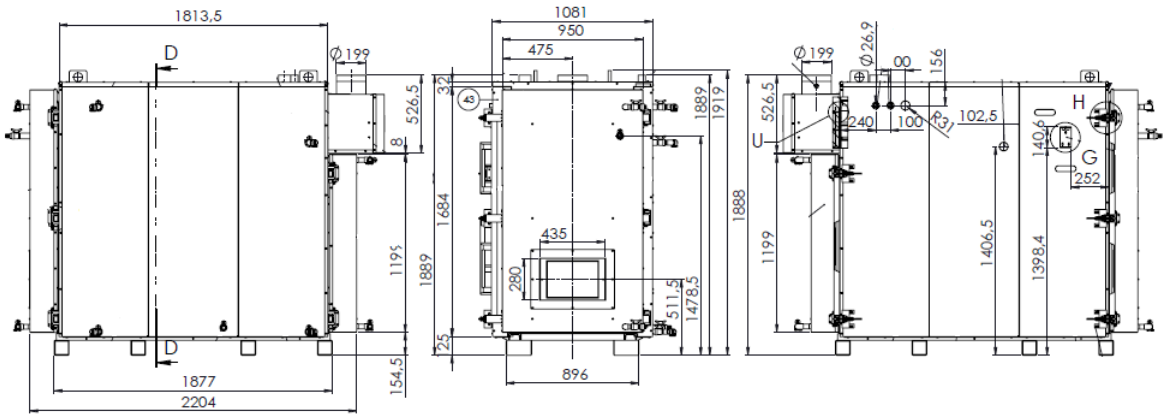
100 kW



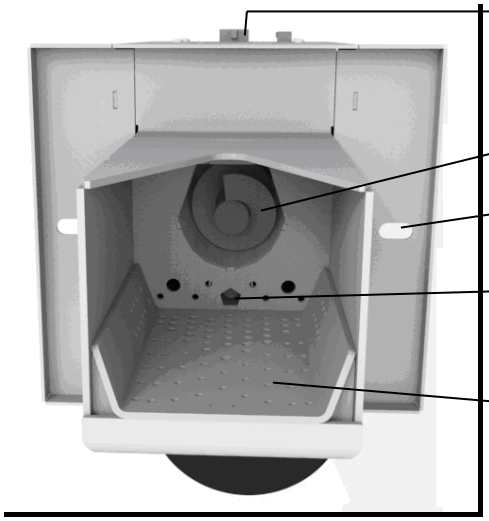
150 kW



200 kW



1.2 Technical data – Biopel pellet burner



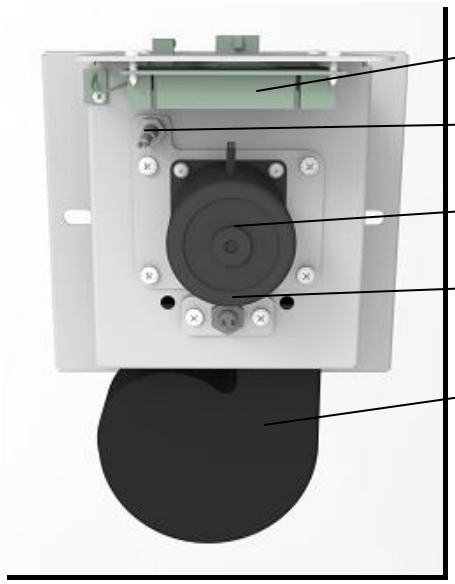
Drop shaft: new pellets falls down to the drop shaft.

Internal auger: moves pellets on the grate

Assembly holes: these holes are for connecting burner onto the boiler flange.

Ignition outlet: hot air comes from this hole during ignition phase. Pellets are ignited in few minutes.

Grate: there are several types of grates depending on burner size. Combustion air goes from to these holes.



Burner PCB: all electronic parts are connected to this electronic board.

Fire sensor: is responsible for transition from ignition to PID work.

Internal motor: meves internal auger.

Igniter: automaticly ignites the pellets.

Fan: supplies fresh air on the grate.

1.3 Technical data – Biopel pellet tank

You can choose from two basic models of Biopel pellet tanks. Read description carefully so you will know which tanks fits to which boiler type.

1.3.1 External tank

External tank is perfect solution for boiler rooms with enough space for big storage tank for pellets. At allows you to fill the tank with more pellets and this of course means less maintenance – you doesn't have to fill this tank to often.

This tank is assembled on the place, so proper certified plumbers should do this to be sure that tank is installed properly.

You can choose from a different sizes regarding table below.

Dimensions	mm	600x600x1300	815x815x1300	1000x1000x1300	1420x815x1300
Pellets volume	kg	110	220	300	350
Weight of hooper	kg	25	29	35	38

** compatible with Biopel 10 – 200*

1.3.2 Compact tank

This type of tank is small to fit to boiler rooms without much space. Pellet auger as already inside so you don´t have to buy it separatly.

Compact tank is assembled on the place, so proper certified plumbers should do this to be sure that tank is installed properly.

Pellet burner is hidden inside the tank so it´s better for look because of all wires placed inside the tank. Control unit is assembled on the tank which makes it easy to access all possible connections.

Dimensions	mm	1210/653/1080
Pellets volume	kg	250
Weight of hooper	kg	95

** compatible with Biopel 10 – 40*

1.4 Technical data – Biopel pellet auger

Pellet auger moves pellets from pellet tank into to the burner. There are two basic types considering lenght. There is also a different type of pellet auger which is used only in compact tank.

Length	mm	2000	3000
Diameter	mm	75	75
Rake	degree	50	50
Weight	kg	7	12

** compatible with External tank only*

2 INSTALATION PROCEDURE

This is step by step proces of Biopel pellet boiler system instalation and start up. Please reade all conditions below carefully to ansure that system is properly instaled.

There are 2 different possibilites of Biopel pellet boiler system instalation. It mainly depends on the boiler and pellet tank types. So this part of manual is devided into the two sections considering type of boiler and pellet tank you have.

2.1 Rules and regulations

- The solid fuels boiler can only be installed by a authorized company to mount these equipments.
- The heating system must be filled with water that meets the valid requirements and especially its hardness must not exceed the required parameters.
- The use of anti-freeze mixture is not recommended by the manufacturer
- Connection of the boilers to the heating system, chimney, regarding the fire regulations, to the electrical network, to the system of HWS heating must be realised according to valid rules and norms.
- The outlet duct should be no longer than 1m, and should be fitted with a cleaning door. The chimney draught should be at least 5 Pa and should be stable, a draught stabilizer should always be installed. If combustion gases condense in the chimney (wet ash) install a draught stabilizer in the chimney, or open the flue (the flap inside at the back of the boiler) as wide as possible to increase the temperature of the smoke. The boiler must be spanned with a bypass to ensure the back flow is always kept above 45 degrees C.

The solid fuels boiler can only be installed by a firm authorized to mount these equipments.

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2.1.1 Positioning possibilities

Boilers positioning with regard to the fire regulations:

BLACK STAR boiler is approved for installation in non-residential premises (like cellars, corridors etc.).

1. Positioning on the floor made of incombustible material

- Install the boiler on the straight, non combustible and solid floor

2. Safe distance from combustible materials

- When installing and operating the boilers thee must be kept a safe 200 mm distance from the combustible materials with combustibility degrees B, C_1 a C_2 (according to ČSN 06 1008).
- For easily combustible materials of degree C_3 that burn quickly and by themselves also after the ignition source removal (like paper, millboard, stiff paper, asphalt and tar boards, wood and fibreboards, plastics, flooring materials) the safe distance is doubled it means to 400 mm.
- The safe distance is to be doubled also in case that the combustibility degree of building material wasn't proved.

Combustibility degrees of building materials and products

Combustibility degrees of building materials and	Building materials and products ranked in combustibility degree (extract from EN 13 501-1)
A – incombustible	granite, sandstone, concretes, bricks, ceramic tiles, mortars fireproof plasters, ...
B–hardly combustible	acumin, izumin, heraklit, lignos, borads and basalt felt, fibreglass boards, …
C_1 – combustible with difficulty	Beech and wood, hobrex boards,plywood, werzalit, umakart, sirkolit, ...
C_2–medium combustible	Pinewood, larch, whitewood, chipboard and cork boards, rubber flooring, ...
C_3–easily combustible	Asphalt board, fibreboards, cellulose materials, polyurethane, polystyrene, polyethylene, PVC, ...

Boilers positioning with regard to the electricity network:

- Boiler must be installed in a way making sure that the plug in the socket (230 V/50 Hz) is always accessible.
- Boiler is connected to the el. network through a wired in and movable cord terminated by a standardized plug.
- Protection against electric shock must be provided according to valid EN

Fuel positioning

- for a correct fuel combustion in boiler there must be used dry fuel We recommend to store the pellets in their original package from manufacturer (for example PET bags) on a dry place
- it is out of question to store the fuel behind the boiler or to store it next to boilers in a distance less than 400 mm
- the manufacturer recommends to keep min. 1 000 mm distance between boiler and fuel or to store fuel in a room different from that where boiler is installed

The room where boiler is installed must be provided with permanent air supply for combustion and possibly with ventilation.

The heating system piping connection must be done by a person authorized according to regulations.

2.2 Biopel boiler

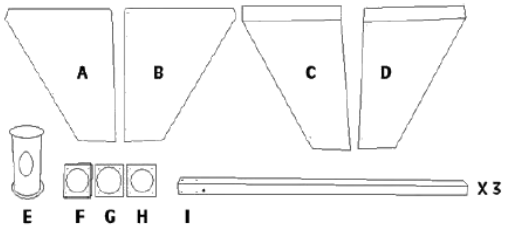
As laways only authorized company should install this boiler. Biopel pellet system line consists of 3 boiler types, but basic connections are always the same. Authorised plumbing company must install this boiler with all steps below to ensure that boiler is installed properly to fulfill all safety and operational requirements set by local laws.

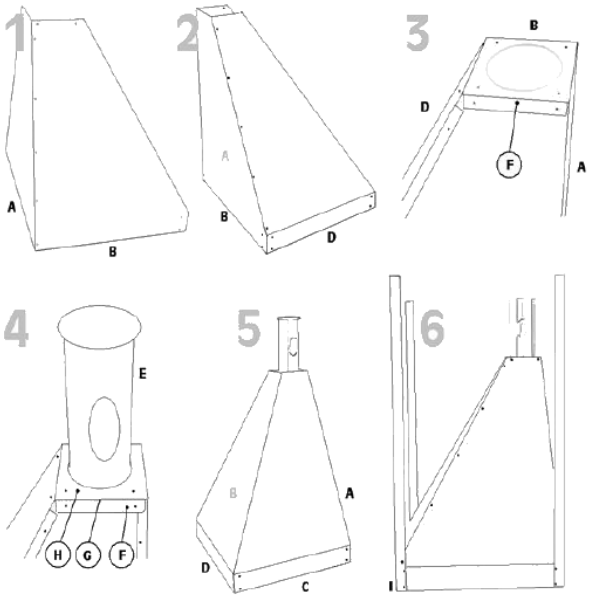
- Boiler palcement and positioning
- Boiler incoming and outcomming water outlets connection
- Chimney connection
- Filling outlet connection
- Filling boiler by water
- Pressure check (manometer should be installed on the heating system)
- Tightness of all connections check

2.3 Biopel tank

Considering different types of tanks choose the type you have and go step by step through the assembly manual.

2.3.1 External tank



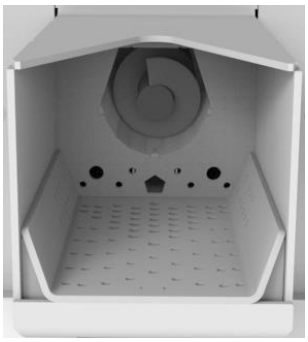


- A and B connect together. After connection you have part AB.
- Connect D on the AB part. After connection you have ABD part.
- Connect part F on the ABD part. After connection you have ABDF part.
- Connect parts H, G, E and F on the ABDF part.
- Then connect C part and you have the whole tank body.
- Connect 3 legs on the tank body.
- You are done. Tank is ready to use. Place this tank next to the boiler close to the place where burner will be installed.

2.3.2 Compact tank

Compact tank is already assembled in the factory. So only thing you have to do during boiler instalation is to place it on the right place next to the boiler. Then assemble burner, Control unit v8 and Connection board.

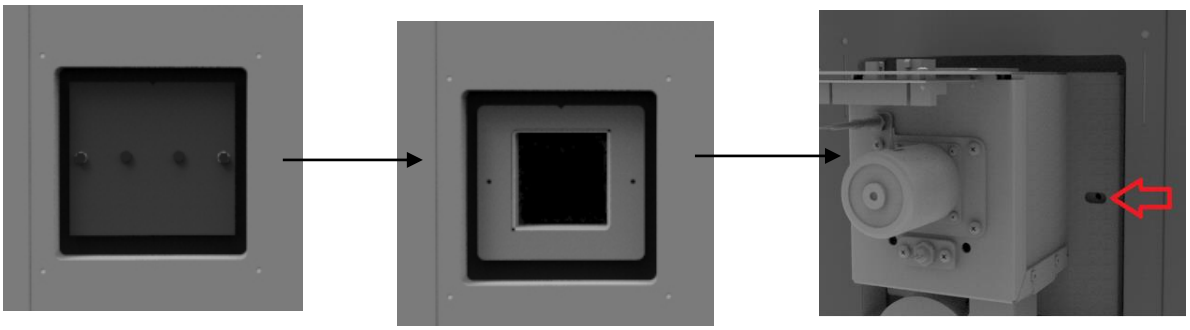
2.4 Biopel burner



First check proper position of the grate (see picture) and than you can place burner into the boiler flange. If you have boiler body Biopel 10 – 80 you can choose left or right side of the boiler for burner instalation. Hoewer the opposite flange on the boiler bust be always sealed.

For example if you choose left flange for burner connection make sure that right flange is properly sealed. Authorised person must do this safety checks in general for you.

Burner is fitted on the boiler flange by two screws. The connection must we tight so there isn't any leaking part where smoke could escape from the boiler to the boiler room.



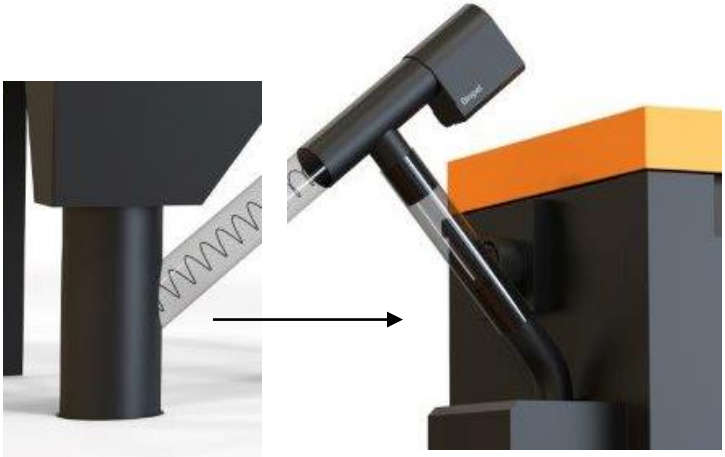
2.5 Biopel auger

Now you have to connect pellet burner with pellet tank. Because of two type of pellet tanks there are also differencies between auger types and the way dou to instal it properly.

If you have compact tank than pellet auger is already inside it. So you dont have to care about the auger and you just skip this part.

If you have external tank than you have to insert bottom auger part to the leg of the external part ehich was named by E letter in the 2.3.1. part of this manual. Than you have to use chain or some other connection manual to hold top part of the auger on the position.

Last part is to connect burner pipeinto the burner and connect PVC tube between burner pipe and auger autlet.



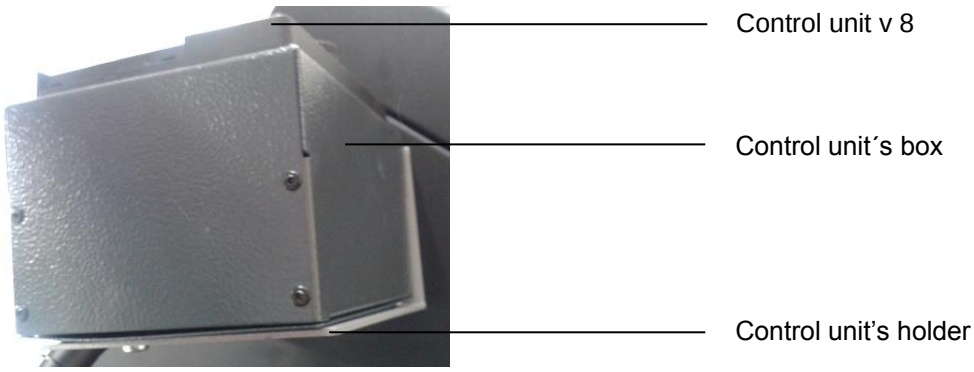
2.6 Biopel control unit v8

Now you have to do last step which is eletrical conection. In the package with burner you can find:

- Control unit v8
- Connection board
    - CH temp sensor (placed to the sing on water outlet)
    - Safety temp sensor (placed to the sing on water outlet)
    - Power supply cable
    - Pellet auger cable

Now you have assemble it on the boiler or tank depending on the type of Biopel pellet boiler system you chose.

2.6.1 Control unit v8



2.6.2 Connection board

All electronic connections are made trough Connection board. This board is connected on the side of the boiler or inside Compact tank.

See more info about all possible connections in 2.6.8,9,10,11 sections.

Connection board is made for easier connections of all accessories which is possible to operate by Control unit v8.

Due to sefate reasons you have to open Connection board first to see electronics inside and to connect all possible accessories except lambda probe, OPOP room regulator, GSM modul.

See more info about possible connections in section 5.

2.6.3 CH temperature sensor

CH temperature sensor is placed on the back side of the boiler on the outcoming water outlet. It is responsible for proper boiler operation and influences power modulation during PID work. See 3.3.2 for more info about PID modulation. Sensor can be installed directly on the pipe or inside the sink which is on the outcomind water outlet.

2.6.4 Chimney temperature sensor

This sensor works as a safety feature and also influences PID work if temperature inside the chimney is too high. Maximum chimney temperature is set to 220°C and the real temperature of the chimney is colese to the set temperature, than boiler starts to modulate burner power down to prevent overheating in the chimney. For this reason the chimney temperature sensor must be installed for proper operation.

2.6.5 Safety temperature sensor

This temperature sensor works as a safety feature. It prevents boiler to overheate. It must be installed into the sink which is located on the outcoming water outlet on the back side of the boiler.

2.6.6 Power supply cable

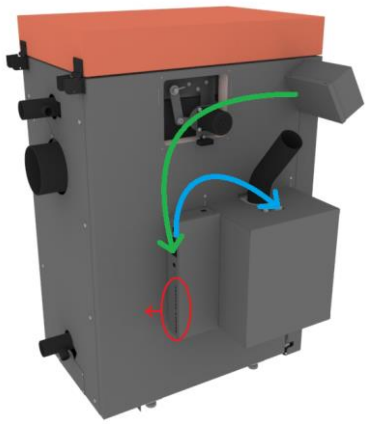
It is connected into the Connection board directly onto the power switch which is also located on the Connection board.

The power switch lights if it’s on.

2.6.7 Pellet auger cable

This cable is connected into the Connection board. It is cable for external pellet auger which supplies pellets in the burner.

2.6.8 Biopel 10 - 40 boiler with external tank assembly



Control unit is installed on the boiler’s side cover. So you have to connect it on the side where burner is.

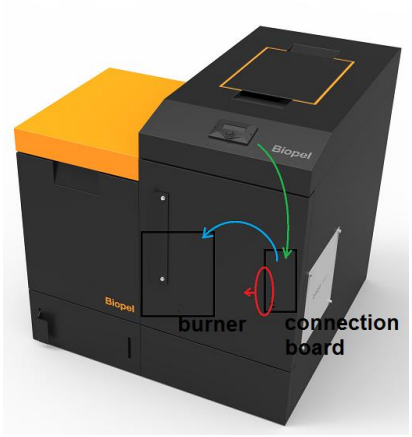
Connection board is mounted on the same side of the boile’s cover as Control unit v8 is.

Than you have to connect it with cables. From the Control unit v8 there is cable going in to the Connection board. And from the connection board you have to connect cable into the burner.

There is main switch of power suply on the Connection board.

All accessories are connected into the Connection board.

2.6.9 Biopel 10 – 40 boiler with compact tank assembly



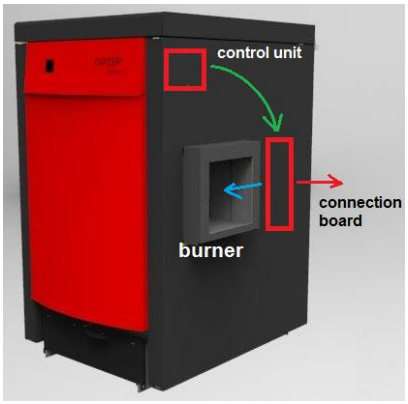
Control unit is mounted into the compact tank. All cables are hidden instide the tank as well as connection board.

You have to connect wire from the Control unit v8 into the Connection board and than you have to connect wire form Connection board onto the burner socket.

There is main switch of power suply on the Connection board.

All accessories are connected into the Connection board.

2.6.10 Biopel 60 – 80 boiler



Control unit is installed on the boiler's side cover. So you have to connect it on the side where burner is.

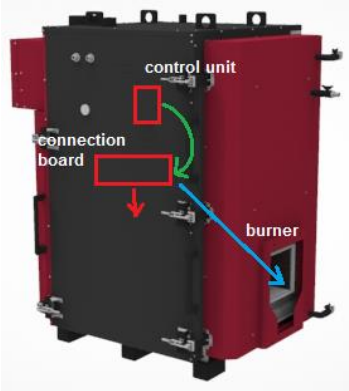
Connection board is mounted on the same side of the boile's cover as Control unit v8 is.

Than you have to connect it with cables. From the Control unit v8 there is cable going in to the Connection board. And from the connection board you have to connect cable into the burner.

There is main switch of power suply on the Connection board.

All accessories are connected into the Connection board.

2.6.11 Biopel 100 – 200 boiler



Control unit v8 and also Connection board is mounted on the side of the boiler.

First assemble control unit and connection board on the boiler cover and than connect cables. There is a special mount for control unit inside the Biopel 100 – 200 boiler body.

First connect cable from connection board to Control unit. And than connect cable from Connection board into the burner.

You can connect all accessories into the Connection board.

Control unit is connected on the side of the boiler as well as connection board.

Front and back doors are connected with tubes. These tubes must be checked and tightened after instalation. For that reason only certified plumber can install this boiler.

These tubes are connecting front and back doors, so there are 4 tubes totally.

There is a compressor cleaning outlet on the front doors. It is attached with valve so you canc lose it if you don't want to use compressor exchanger cleaning.

Magnetic valve is connected directly on this outlet. Than there goes tube directly into the compressor.

You can find 2 outlets on the side of the boiler. You can connect temperature sensors from the connection board in to this outlet.

You can use it also for safety thermostat (old connection with use of v7 and v10 control unit).

Filling inlet is located on the side of the boiler, bottom part. Fill the boiler with water by connecting water pipe on this outlet.

Be aware of maximum working pressure which is noted on the boiler sticker. Keep in mind that pressure inside boiler is increasing along with water temperature inside boiler.

There are cleaning doors on the back side of the boiler. It helps with chimney and exchanger cleaning.

We recomand to open and check this at least twice per heating season.

Keep in mind that after cleaning doors must be closed tightly so there can't be any leackage from the boiler.

Boiler's inlet and outlet for heating system water is located on the top of the boiler.

There ae also hendles for boiler manipulation by crane.

3 OPERATING THE SYSTEM

Here you can find the most important information about how the Control unit v 8 works. Basic description of user interface and all general information which helps you to understand the operatin process. In this section you can find functions of control unit, how to change values and menu navigation in general.

3.1 Biopel control unit v8 basic description

1. **Exit:** you can use this button for exiting the last menu, You can also select the main screen side Because you are able to select two different type of display information on each side of the screen. To select between them you use Exit button.
2. **Navigation:** You can navigate in menu by this button, change values and select functions.
3. **Menu:** by pushing this button you can access manu of the control unit.

Control unit v8 is regulator with stable output signal using modified PID algorithm. With this control unit speed of the fan is calculated considering outcoming temperature from the boiler and chimney temperature on the boiler outlets. Fan works without stopping an its speed depends on outcoming temperature, chimney temperature and their difference between real and measured values. Keeping the set temperature is one of the best advantages of this control unit.

This type of PID regulation with help of chimney temperature saves fuel, outcoming boiler temperature is stable. As a result of chimney temperature sensor you can decrease emisions and heat from pellet burner doesn't escape through the chimney.

3.2 Initial startup

During the first start up you are able to select language. Than the main screen appears which shows you general information about boiler operation.

Be aware that only certificated plumber company is allowed to make first setup of the boiler's main functions. There is dedicated function for it called First boiler start up. For the same reason this function is under the password.

After First boiler start up you are alowed to start the boiler for the first time. This you can do by Ignition/Extinction button. Name of this button changes depending on concrete boiler operation. If

the boiler is in normal operation called PID work, than you can see Extinction button to switch the boiler off. If the boiler is switched off than you can find only Ignition button inside the menu.

3.3 Control unit's basic operation

1. Operational mode - User can choose one of four pump operational modes. See section 3.4.4 for more.
2. Chimney temperature – each Control unit v8 has chimney temperature sensor.
3. Fire sensor level – if there is flame inside the burner you can see a flame symbol in this section of the main screen.
4. Actual time – you can set this value in First boiler start up or in Basic settings – plumber settings – Time.
5. Measured boiler temperature – measured value by CH temperature sensor.
6. Set max boiler temperature - by pushing navigation button you can change this value. Or you can set it in Basic settings – CH temperature.
7. Measured water temperature in water tank, if you use pump connected into the Connection board for DHW.
8. Set water temperature in water tank - You can set this value during First boiler start up or in Basic settings – DHW temperature.
9. Operational state – it shows you in which phase of operation boiler is.
10. Electrical component indication. It shows you in when a certain component works including all electrical components assembled on the burner and also all external devices connected into the Connection board.

3.3.1 Ignition

This function is started by user by selecting Ignition in the menu. After ignition pellets are going on the grate and Ignition pahse is started by automatic switching on of the igniter. There is waiting time for the flame detection. When Fire sensor sees the light control unit stops igniter and gose to normal operation which is called PID work.

3.3.2 PID work

This is main working state of control unit v8 in which fan and pellet auger works depending on automatic functions set in the control unit by manufacturer and instalation company. Temperature oscillates around set temperature. As a addition fan can be regulated by lambda probe if you use it.

If temperature goese up faster than expected (more than 5°C above set point) a Extinction function is activated. In this situation control unit waits for temperature to drop down below hysteresies set point which is called Temperature difference. Then Ignition phase is activated again.

3.3.3 Extinction

This function can be activated by user or it is started after reaching set temperature +5°C. Pellet supply is deactivated and fan works until Fire sensor doesnt see the light + set time for extinction phase set by manufacturer. There is 10 min extinction time set from the factory.

3.4 Control unit's menu structure

First boiler start up – under the code, used by instalation company to start up the boiler for the first time properly.

Ignition / Extinction – works as a start / stop function of the boiler. Only one message apears in the same time. For example: if the boiler is in PID work only Extinction is vissible for switching of the boiler. And if the boiler is is extinction phase than you can see only Ignition for starting the boiler again.

Basic settings – these parameters are accessible by user and are the basic functions of controlling operation of the boiler.

Service setup – under the code. Only authorised instalation company can access this setup.

Factory setup – setup of basic functions made by manufacturer.

3.4.1 CH temperature

Basic settings – CH temperature. This function allows you to change otcoming boiler temperature on range from 45°C to 80°C. Second option is to change this temperature directly on the Main screen by turning Navigation button left or right.

3.4.2 DHW temperature

Basic settings – DHW temperature. This function allows you to change set temperature of the hot water production in range from 45°C to 75°C.

3.4.3 Temperature difference

Basic settings – Temperature difference. This function allows you to chang the temperature point when the boiler starts the PID work again after reachin maximum temperature set in CH temperature function.

Example:

CH temperature = 80°C

Temperature difference = 10°C

Control unit starts the boiler when temperature drops below 70°C.

3.4.4 Operational mode

Basic settings – Operational mode. User can choose one of four pump operational modes. It always depends on concrete heating system setup so you should consult this with your plumber.

- **Only CH:** house heating only. Central heating pump starts work after reaching the set temperature (set from the factory). When temperature dorps 2°C below set point pump stops it's work.
- **DHW priority:** pump of hot water production has priority and works until DHW temperature is reached. After reaching the DHW temperature DHW pump stops and CH pump is activated. In this mode the fan speed and pellet auger run time is limited by boiler temperature 65°C so there is no risk of boiler overheating.
- **Pumps CH + DHW:** In this mode both pumps (CH and DHW) starts work in the same time after reaching set point (40°C). CH pump works all the time and DHW pump stops after reaching set DHW temperature.
- **Summer mode:** CH pump is off and DHW pump is switched on after reaching temperature setpoint (40°C). In this mode DHW pump works all the time. In summer mode you can set only CH temperature, so CH temperature is used also for heating up the DHW. After selecting summer mode it shows you measured Ch temperature and two DHW temperatures (measured and set temperature).

3.4.5 Tank full

This function allows you to display actual content of pellets inside the tank. If you select this function it means that pellet tank is filled and it shows 100% in the main screen. Important is to make pellet auger calibration before you use this function. Calibration is hidden inside Basic settings – Plumber settings. So certified plumber should make this calibration for the first time.

3.4.6 Timetable

This function allows you to programm changes of set CH temperature during the day.

- **Step one:** Set the real time in Basic settings – Plumber settings – Hours.
- **Step two:** User sets the temperatures for each day:
    - Monday to Sunday
- Monday to Fryday and Saturday to Sunday
- **Step three:** User activates one of two modes set before. It is activation or deactivation of timetable function. When you activate one of the functions in step two it shows you CH temperature and also deviation from this value set in the timetable. You can also delete all set numbers if neccessary.

3.4.7 Plumber settings

Functions in this menu sets certificated plumber. So you should consult all possible functions with your plumber.

3.4.8 Manual operation

You can activate all electric devices in this menu. It helps during the regular ispections of the heating system and it also helps plumber to find possible problems and solve them quickly.

3.5 Oniline functions

Each Biopel pellet system includes ethernet modul which allows remote control of the system by internet or local network. User can see states of all devices connected to the control unit and change values which are connected with boiler operation.

3.5.1 Connection

- Connect power supply plug (9V DC) to the internet modul which is part of Connection board.
- Connect ethernet cable to the seconf socket of internet modul.

3.5.2 Pairing Internet modul and Control unit v8

- You have to activate intrnet modul first and type IP adress.
- Basic settings – Plumber settings – Internet modul – Activate
- Than after selecting Activate it shows you IP adress of youe internet modul. Please write this adress on some note, you will need it few minutes.

3.5.3 Login

- Start the browser and type IP adress you found during the last step.
- It shows you login screen.
- Type username set from the factory which is: *user* and hit enter. Leave password empty.
- Then we are already logged in to the internet modul.

3.5.4 Setting protection

- In order to change the odule access user name and password enter the settings tab which is located in the right top corner of your browser.
- Change the password and set your wanted user name. Hit the change button.
- „Operation completed successfully“ should appear on the screen.

3.6 Software updates

Control unit v8 allows you to upload new software updates by USB key. There is USB slot under the front cover of control unit. See USB mark on control unit´s cover.

When you uploat new software version please folow steps which are sown below:

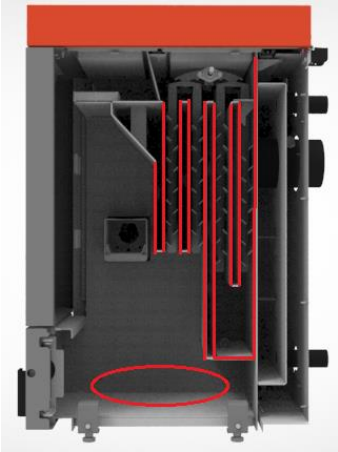
- Push main switch on Connection board to off position.
- Remove front plexi cover of Control unit v8
- Insert USB memory key to USB slot
- Push and hold Navigation button
- Push main switch on Connection board to on possition.
- Wait for acustic signal and relase Navigation button than wait for software upload procedure. Beaping acustig signal.
- When signal is constant without beaping, remove USB key.
- Control unit restarts itself automaticly and you will see a new software version on the starting green where OPOP logo is.

4 GENERAL MAINTENANCE

4.1 Boiler cleaning

Considering Biopel boiler type there are a different ways how to clean boiler properly. You have to clean boiler exchanger and boiler ash tray.

4.1.1 Biopel 10 – 40



1. Remove cleaning mechanism
2. Clean all smoke coolers inside boiler exchanger
3. Remove cleaning flap by cleaning tool. All ashes from the exchanger will drom down tot he ash tray because of that.
4. Remove ash tray and clean it. If you have Automatyc dashing system you just remove and clean the external ash conteiner.
5. Insert cleanig flap on the bottom of the boiler exchanger. Make sure taht this flap covers hole in the botom so there is no vissible hole undre the cleaning flap.
6. Insert cleaning mechanism again.

4.1.2 Biopel 60 – 80

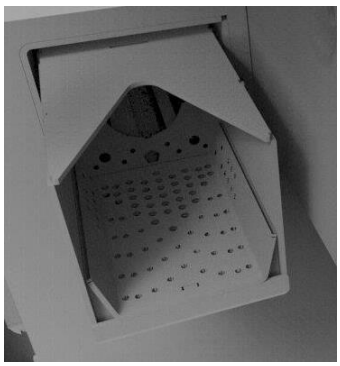
1. Remove turbulators from the boiler if the boiler has them inside.
2. Clean all smoke coolers inside boiler exchanger.
3. Remove ash thay to clean it properly and than insert it back to the boiler. In Biopel 80 there are two ash trays to remove
4. Insert turbulators inside again.

4.1.3 Biopel 100 – 200

1. remove all turbulator from boiler exchanger. There should be one turbulator in each hole inside boiler exchanger.
2. Clean all exchanger holes from each side of the boiler. All ashes from the pipes should drop down into the bottom of the boiler.
3. Remove all ashes from the botto of the boiler.
4. Insert all turbulators into the exchanger again.

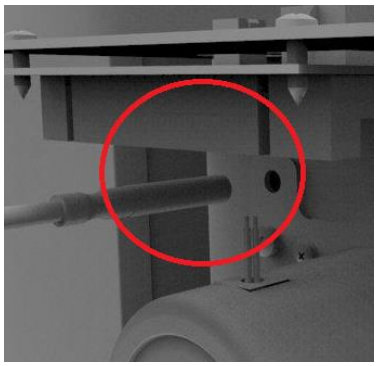
4.2 Burner cleaning

1. Disconnet and than remove burner form the boiler flange.
2. Remove grate from the burner body and clean it with brush.
3. Clean burner head, the place where grate was placed.
4. Insert grate into the burner and make sure that the position is as it is shown on the picture.
5. Turn the burner to the opposite side.
6. Remove Fire sensor and check if it is cleal. Than put it back.
7. Remove Igniter and clean it with soft napkin. Put the Igniter on the palce again.
8. Insert burner back to the boiler.

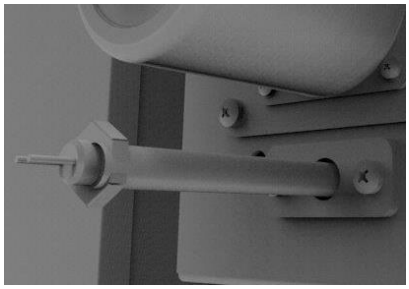


Grate on the place

Removed grate



Clean fire sensor



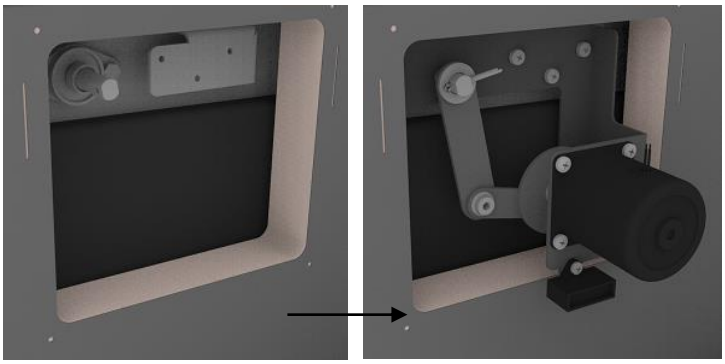
Check also proper position of igniter. Igniter should be tightened.

You can remove small metal plate which holds by 2 screws and check inside of the burner if there are no ashes inside the igniter's sink.

5 OPTIONAL ACCESSORIES

You can choose from various accessories to make your boiler iven more automatic. All these devices are here to serve you and make your boiler easier to maintain and operate.

5.1 Automatic exchanger cleaning



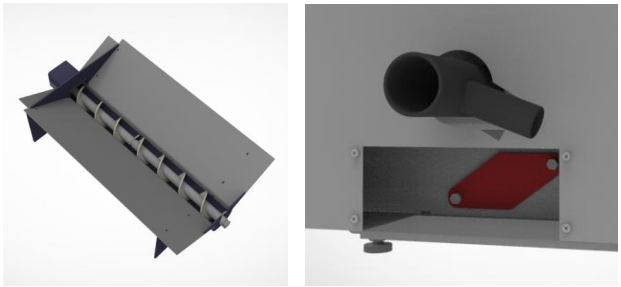
There are turmolators in the boiler as a standard. But you can connect motor on it to make it move and let it clean the exchanger of the boiler for you.

Instalation of automatic exchanger clearing is very easy. You can folow steps written below.

5.1.1 Instalation procedure

- Choose from which side of the boiler the motor for exchanger clearing should be.
- Remove the cover which holds by 4 screws on the chosen boiler side.
- Under the cover you can see motor holder and cleaning mechanism rod (left picture).
- Mount motor on the motor holder using 3 screws (right picture).
- Connect moving part of the motor set to the clearing mechanism rod by split pin.
- Connect motor electricaly with Connection board into the Cleaning output.

5.2 Automatic dashing



Serves you as a tool to easily remove ashes from the ash tray. There is special conteiner which is easy to remove from the boiler with all ashes.

Boiler body is already prepared for dabing assembly. There are a few steps for automatic dabing assembly. Folow these steps for proper instalation. There is a step by step guide below.

5.2.1 Instalation procedure

- Remove ash door.
- Remove Ash tray.
- Remove small cover which is located on the bottom back side of the boiler.
- Under the cover you can find metal blind which must be also removed.
- Insert Automatic dashing set into the boiler.

- Mount motor of automatic dashing on the auger rod on the back side of the boiler.
- Insert Ash conteiner in the front side of the boiler.
- Connect motor with extended cable in the Connection board outlet.
- Activate Automatic dashing in Basic settings – Plumber settings – Automatic dashing:
    - Activation – activation of Auto dashing.
    - Dashing interval – how often should Auto dashing start operation.
    - Dashing time – how long time Auto dashing works.

5.3 Vacuum transport

For transfering the pellets for long distances. Easy to mount on all pellet tanks.It is not easy to transfer pellets from one place to another automaticly.

With use of standard boiler setup you have to use Biopel pellet auger to supply pellets on the turner grate.

But if you have some big silo full of pellets or big bag you have to use Vacuum transport to transfer pellets from the silo to the Biopel External or Compact tank.

5.3.1 Instalation procedure

- Remove top lid from Compact tank if you use Compact tank in your Biopel heating system.
- Install Vacuum tank holder on External tank if you use External tank in your Biopel rating system.
- Instal Vacuum transport tank on the Compact or External tank.
- Insert Vacuum transport mole into the pellet silo or big bag.
- Connect power supply cable into the mole socket.
- Connect second power supply cable into the 230V socket.
- Activate Vacuum transport in Basic settings – Plumber settings – Vacuum transport:
    - Activation – activation of vacuum transport.
    - Transport interval – how long Vacuum transports waits for next run.
    - Transport time – how long Vacuum transport works.

5.4 Compresor cleaning

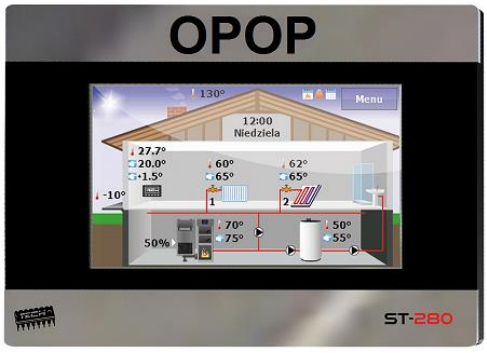
You can clean your burner with help of compressor. You dont have make maintenance of the burner by yourselve to often because of that.

Whit this package you will receive compressor and all accessories important for compressor connection including air tubes and electromagnetic valve which is connected into the connection board.

5.4.1 Instalation procedure

- Instal air filter on the compressor's outlet (remove orange sealing).
- Connect air tube on the outlet which is located on the right side of compressor next to the red pressure valve.
- Connect second part of air tube into the electromagnetic valve.
- Instal all compressor tubes inside burner body. Ant connect second air tube to these pipes. Connect electromagnetic valve with this second air tube.
- Connect electromagnetic valve into the Connection board.
- Press red button on the compressor and wait for compressor to pressure itselve.
- Check setup of Compresor cleaning in Basic settings – Plumber settings - Compressor cleaning.
    - Activation – compressor activation
    - Compressor interval – how often is electromagnetic valve opened
    - Opening time – for how long time is electromagnetic valve opened

5.5 Room thermostat



OPOP's room thermostat is designed to control and monitor room temperatures and temperatures in central heating and hot water sysetms. Additionaly, the device can run a weekly heating program. The device fetures an alarm clock, many useful settings and parental lock to protect against unwanted changes to settings.

By this thermostat you will be able to confortably control temperature in your home and temperature of hot water directly from your flat/house without having to walk down to the boiler room.

You have to calibrate room termostat before you can use it properly. Go to Basic settings – Plubmber settings – Room termostat – Regular OPOP termostat – Activate.

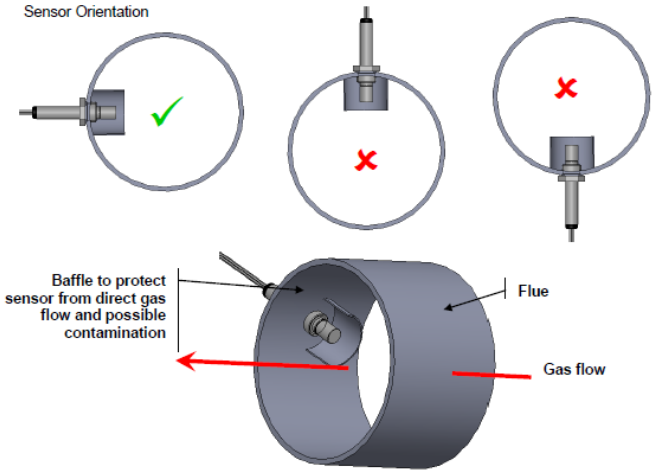
OPOP room termostat is wireless device so you can Conner it into the Control unit v8 without any cables.

5.6 Lambda probe

Lombda probe works as a O2 measurement device. By this you can increase quality of combustion process. User sets amounth of oxygen inside the chimney and lambda probe regulates fan speed to keep the oxygen on the set level. Atvantage of this function is realy easy operation.

5.6.1 Instalation procedure

- Remove cover form back of the boiler under the chimney outlet (for Biopel 10–40).
- For rest of the boiler you have to make hole for the lambda probe in the chimney flue path as close to boiler as possible.
- Insert lambda probe as it is shown in the picture below.



- Connect lambda probe into the Connection board.
- Lambda probe activation and setup inside Basic settings – Plumber settings – lambda probe:
    - Activation – lambda probe activation. Than fan speed and auger run time is regulated by lambda probe.
    - Fist time act.Lam. - user sets the first time of regulation after the activation of lambda probe.
    - Update time – frequency of data actualization and fan and auger correction.
    - Oxygen change – size of regulation change. Auger run time will be changed by value set in this function.
    - Fan change - size of regulation change. Fan speed will be changed by value set in this function.
    - Sum – if you choose this function control unit will sum all changes in the past to make a new adjustment. I determinates the limits of fan correction. Decrease of the fan speed will not be lower than the Minimum change and increase of the fan speed will not be higher than Maximum change.
    - Min. change – lowest value possible for speed decrease of the fan.
    - Max. change – highest value possible for spead increase of the fan.
    - Lambda 100% - set oxygen during maximum power of the boiler.
    - Lambda 1% - set oxygen during minimum power of the boiler.

6 TROUBLESHOOTING

Alarm Temperature sensor fail	Check eletrical connection of CH temperature sensor, Safety temperature sensor and chiney temperature sensor Is sensor installed properly on the pipe outlet?
Alarm Ignition fail	Go to Basic operation – Manual operation and activate igniter. Igniter must be hot after 30 sec. If not, change igniter. This alarm can appear if bed setup of amount of pellets and fan speed is made. Consult this with your instalation company.
Alarm Auger temperature	High temperature inside burne's drop shaft. Burner is not cleaned, there could be a back pressure in the boiler due to ashes insde boiler exchanger – clean it. Low chimney draft can by also the reason.
Boiler overheated	Safety thermostat disables boiler operation because of: No water flow inside the system – check pump function. Some of the valves is closed – check valve function.
Unburned pellets in the ash tray	To many pellets or fast speed of the fan. Consult this with your instalation company. Bad quality of pellets. High chimney draft. Install draft stabilizer.
Air condensation	If you have water inside boiler or chimney than you have to increase chimney temperature. This temperature should be obove at least 80°C
Low temperatures in the heated rooms	Insufficient heat output - The burner operating parameters need tobe adjusted. Low set point CH temperature of the boiler or operating roomthermostat. High chimney temperature – instal draft stabiliser. Boiler size is to small for heated rooms.
Pellets not being fed into the combustion chamber	Pellet tank is empty or Feeder screw blocked by sawdust or motor is defective.
Other faults not described above	You need to call for an authorised technician and have the boiler serviced if necessary

7 WARRANTY CONDITIONS

Wooden pellet boiler: BIOPEL **Production number:**

Manufacturer: OPOP spol. s r.o., Valašské Meziříčí, Czech republic

Tel.: 00420 571 675 589, **fax.:** 00420 571 611 225

Date of shipment from the factory:_____

Warranty conditions:

This warranty certificate includes a certificate of quality and completeness. The manufacturer certifies that the product is inspected and meets its design specifications and EN 303-5. For quality, function and we guarantee the boiler for 24 months from the date of sale to the consumer, no longer than 30 months after expedition from the factory and in a way that demonstrably result of defects due to faulty materials, faulty design, faulty design or removed as soon as at our expense, provided that the boiler:

- it is in normal condition according to the Instruction manual
- is connected to a chimney according to CSN 73 4201:1989
- is not damaged mechanically (no unauthorized interference with the exception of interference allowed in the instructions)
- chimney draught must match the value listed in the table. 2, according to the type of boiler
- consumer complaints submitted with the application of this warranty certificate duly completed
- complying with the manufacturer's instructions for the use of pressure expansion vessels

Note:
When a fault is always necessary to submit the warranty certificate, give the exact address and the circumstances under which the defect occurred. The manner and place of repair will be decided in our company.

Date of quality control_____

Date of sale_____

OPOP, spol. s r. o.

Zašovská 750

757 01 Valašské Meziříčí

Bank details:

Komerční banka a.s., account no.:1608851/0100

Reg. no.: 47674105, VAT no.: CZ 47674105

Phone: Sales Dept: 571 675 589, Secretariat: 571 611 250, Production: 571 675 405

Sourcing: 571 675 114, Finance: 571 675 472

Fax. 571 611 225